

comprising:

14. (Currently Amended) A process for brazing aluminum alloy plates

incidental impurities.

least one additive element selected from the group consisting of: Cu, Mg, and Zn; and the group consisting of Ag, Be, Bi, Ce, La, Pb, Pd, Sb, Y or mischmetal; optionally at weight, 4% to 15% of silicon, and 0.01% to 0.5% of at least one element selected from core alloy, the aluminum brazing alloy ~~including~~ consisting essentially of, in % by (b) an aluminum brazing alloy coated as a single layer on at least one face of the

each and <0.15 total, remainder aluminum, and  
Zr<0.3; Cr<0.3; Ni<2.0; Co<2.0; Bi<0.5; Y<0.5; other elements <0.05  
Si 0.3-1.0; Fe<1.0; Cu 0.3-1.0; Mn 0.3-2.0; Mg 0.3-3.0; Zn<6.0; Ti<0.1;  
(a) a core alloy with composition (% by weight):

and in which at least one of the plates consists essentially of:  
nitrogen and/or argon at a temperature of between 580°C and 620°C, and rapid cooling,  
comprising fluxless brazing under a controlled atmosphere consisting essentially of  
1. (Currently Amended) Process for assembly of aluminum alloy plates

### Proposed Claim Amendments

Greg Schlenz

Best regards,

Below is a summary of our arguments and proposed claim amendments for use in our telephonic interview scheduled for June 22, 2010, at 10:00am EST. If you should have any questions or comments prior to the Interview, please contact me at 312-463-5443.

Dear Examiner Patel,

Docket No. 007035.00013

Final Office Action Mailed 3/29/2010

Serial No. 10/596,057

Examiner Devang Patel (ph: 571-270-3636, fax: 571-370-4636)

### Outline for Examiner Interview

group consisting of: Cu, Mg, and Zn; and incidental impurities.

from the group consisting of Ag, Be, Bi, Ce, La, Pb, Pd, Sb, Y or mischmetal; optionally at least one additive element selected from the group consisting of: Cu, Mg, and Zn; and incidental impurities.

4% to 15% of silicon; and 0.01% to 0.5% of at least one element selected from the group consisting of Ag, Be, Bi, Ce, La, Pb, Pd, Sb, Y or mischmetal; optionally at least one additive element selected from the group consisting of: Cu, Mg, and Zn; and incidental impurities.

weight):

surface of the brazing sheet, the brazing alloy comprising essentially of (% by weight)

brazing alloy occupies an entire thickness between the core alloy and a respective outer an aluminum brazing alloy coating at least one face of the core alloy, wherein the each and <0.15 total, remainder aluminum; and

Zr<0.3; Cr<0.3; Ni<2.0; Co<2.0; Bi<0.5; Y<0.5; other elements <0.05

Si 0.3-1.0; Fe<1.0; Cu 0.3-1.0; Mn 0.3-2.0; Mg 0.3-3.0; Zn<6.0; Ti<0.1; a core alloy comprising (% by weight):

between 580°C and 620°C, the brazing sheet consisting essentially of:

controlled atmosphere consisting essentially of nitrogen and/or argon at a temperature of

20. (Currently Amended) A brazing sheet suitable for fluxless brazing under a

(c) rapidly cooling the plates.

single layer on at least one face of the core alloy, and

and between 0.3% and 1.0% by weight copper, with the cladding alloy coated as the 0.3% and 3.0% by weight magnesium, between 0.3% and 2.0% by weight manganese, essentially of a core alloy comprising between 0.3% and 1.0% by weight silicon, between 580°C and 620°C, wherein at least one of the plates subjected to fluxless brazing consists atmosphere consisting essentially of nitrogen and/or argon at a temperature of between (b) subjecting the one or more plates to fluxless brazing under a controlled

incidental impurities.

at least one additive element selected from the group consisting of: Cu, Mg, and Zn; and from the group consisting of Ag, Be, Bi, Ce, La, Pb, Pd, Sb, Y or mischmetal; optionally 15% by weight silicon; and 0.01% to 0.5% by weight of at least one element selected a cladding alloy comprising essentially of, in % by weight, between 4% to (a) coating one or more plates on at least one face with a single layer consisting of

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- Applicant has included a summary of its arguments regarding the rejections under § 103:
- As described previously, the combination of the teachings of Miller and Dockus does not yield the claimed invention, because if Miller and Dockus were combined to create a sheet for fluxless controlled atmosphere brazing, the sheet would have an additional braze promoting layer.
  - Childree discloses a sheet for fluxless CAB with a filler alloy that contains 0.0008% to 0.06% sodium (Na).
  - Childree clearly teaches that the addition of sodium is the critical addition that makes the alloy suitable for fluxless CAB, particularly with core alloys that may contain more than 0.5% Mg (e.g. the core alloy of claim 1). See the following:
    - Par. 14: "The product is an aluminum filler metal that contains silicon and sodium."
    - Par. 24: "The addition of sodium alone or in combination with potassium and/or bismuth to the filler material allows increased levels of magnesium to be introduced into the core alloy..."
    - Par. 26: "Sodium is intentionally added to achieve the desired beneficial properties."
    - Par. 29: "The intentional addition of these elements [sodium alone or sodium combined with potassium and/or bismuth] allows brazing to occur without the need of a flux."
  - As a result, Childree teaches away from using a brazing sheet that does not contain sodium in the filler layer, particularly if the core alloy may contain more than 0.5% Mg, and cannot be used to construct a brazing sheet that does not contain such a filler layer.
  - Therefore, the combination of Childree with Miller and Dockus to create a sheet for fluxless CAB would require either:
    - a) An additional braze promoting layer, as taught by Dockus, discussed previously, or
    - b) A filler layer that contains sodium, as taught by Childree.

### Rejections Under 35 U.S.C. § 103

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- The amended claim language of claims 1, 14, 19 and 20 exclude the use of a brazing sheet for fluxless CAB with a brazing alloy that contains any effective amount of sodium. Accordingly, the proposed combination cannot create a *prima facie* case of obviousness.
- If the Examiner does not agree that the amendments to claims 1, 14, 19, and 20 exclude the use of sodium in the brazing layer of the brazing sheet, Applicant seeks the Examiner's advice regarding how to amend the claims to accomplish this objective.